Docket No.: NOBELB.163A

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APPEAL BRIEF

Applicant	:	Steve Hurson
App. No	:	10/748,869
Filed	:	December 30, 2003
For	:	DENTAL IMPLANT SYSTEM
Examiner	:	Ralph A. Lewis
Art Unit	:	3732

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the Notice of Appeal filed October 31, 2007, Applicant submits this Appeal Brief.

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I. REAL PARTY IN INTEREST

The real party in interest is Nobel Biocare Services AG, Balz Zimmerman-Strasse 7, 8152 Glattbrugg, Switzerland, which is the owner of the patent application by virtue of an assignment from the inventor at Reel No. 015812/0071.

II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals or interferences.

III. STATUS OF CLAIMS

Claims 2 and 12-17 have been canceled. Claims 1, 3-11, and 18-35 were finally rejected in the Final Office Action dated July 27, 2007. Claims 1, 3-11, and 18-35 are being appealed.

In an Amendment Accompanying Appellant's Appeal Brief filed concurrently herewith, Appellant amends Claim 28.

Prosecution History of Claims Prior to July 27, 2007 Final Office Action

The subject application was originally filed on December 30, 2003 with Claims 1-35.

On September 26, 2005, in response to a non-final Office Action mailed on March 24, 2005, Claims 1 and 28 were amended.

On April 10, 2006, in response to the Final Office Action mailed on January 10, 2006, a Request for Continued Examination was filed, along with an amendment wherein Claims 1 and 28 were amended and Claims 2 and 12-17 were canceled.

On July 5, 2006, a Notice of Allowance was mailed in which pending Claims 1, 3-11, and 18-35 were allowed. However, on October 4, 2006, another Request for Continued Examination was filed along with an amendment in which Claims 1, 4, 5, 6, 8-11, and 28-29 were amended.

On May 14, 2007, in response to a non-final Office Action dated December 14, 2006, Claims 1, 7, and 9 were amended and new Claim 36 was submitted for consideration.

Finally, on October 31, 2007, in response to a Final Office Action dated July 27, 2007, a Notice of Appeal was filed. An Amendment accompanying Appellant's Appeal Brief is filed concurrently herewith, in which Appellant amends Claim 28.

IV. STATUS OF AMENDMENTS

As disclosed in Section III above, accompanying the present Appeal Brief, Appellant has filed an Amendment that amends Claim 28. The Amendment is filed in accordance with M.P.E.P. § 714.13.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The appealed claims are directed to dental implants and related methods of installing a prosthetic tooth. As discussed in the application, one of the body's natural defense mechanisms creates an approximately 1-3 millimeter zone of soft tissue between an abutment-implant interface and the alveolar crest. It is critical that this zone be protected and properly healed after an implant is installed. The claims being appealed are directed to an implant system and related methods whereby a healing cap is used to control the healing and growth of the patient's gum tissue after implant site. The implant is uniquely configured such that notches in its bore receive prongs or snapping elements of the healing cap, thereby allowing the healing cap to be easily and safely installed. As a result, the subject matter of the appeal claims provides a solution to these problems, specifically, bone tissue reabsorption and alveolar crest retreat.

As described in the specification, and as shown in Figure 1A below, the system includes a one-piece dental implant 10 and a mating component. The implant 10 comprises an implant body portion 12 and an abutment portion 38. Application, p. 2, ¶ 44. The abutment portion 38 comprises a flared region 42, a shoulder portion 47 and a final restoration portion 40. The shoulder portion 47 lies between the flared portion 42 and the final restoration portion 40. *Id.* at p. 3, ¶ 50.

The implant 10 also includes a bore 52 that extends generally along the longitudinal axis of the dental implant 10 from a top surface of the abutment portion 38. *Id.* at p. 3, ¶ 54. The bore includes a notch that is configured to releasably receive one or more lever arms or prongs on a mating component, such as the above-mentioned healing cap. *Id.* at p. 3, ¶ 55. Figure 1D is an enlarged, detailed view of the abutment portion 38 illustrating that the bore 52 and the notch 57 formed therein for receiving one or more lever arms or prongs of a mating component, such as a healing cap.

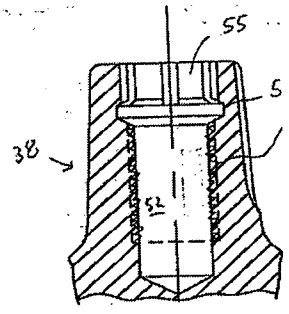

Figure 1D

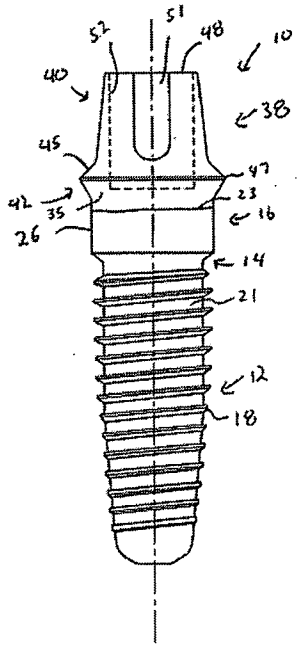

FIG. 1A

Independent Claim 28 is directed to a

method of installing a prosthetic tooth. The method is described throughout the application and entails the insertion of a distal end of the body portion of the dental implant 10. *See e.g.* Application, p. 1, ¶ 6; p. 3, ¶¶ 50, 54-55; and p. 4, ¶¶ 63-64. After the implant 10 is installed into a patient's jawbone, a lever arm or prong of a mating component is engaged to the notch 57 in the internal bore 52 to releasably couple the mating component to the dental implant 10. *Id.* at p. 3, ¶¶ 54-55. The healing cap can be coupled to the abutment portion 38 such that the abutment portion 38 is positioned within an internal cavity of the healing cap. *Id.* Finally, the healing cap can be removed from the abutment portion 38. *Id.* at p. 4, ¶¶ 63-64.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. The rejection of Claims 30-34 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,769,913 issued to Hurson ("Hurson") in view of U.S. Patent No. 4,790,753 issued to Fradera ("Fradera") in view of U.S. Patent No. 6,951,462 issued to Kumar et al. ("Kumar").

B. The rejection of Claims 1, 3, 6-11, 28 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Fradera in view of Kumar.

C. The rejection of Claims 4, 5, 8, 9 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Fradera in view of Kumar as applied above and in further view of International Publication No. WO 01/85050 issued to Hurson ("WO '050").

D. The rejection of Claims 18-27 under 35 U.S.C. § 103(a) as being unpatentable over Fradera and Kumar as applied above and in further view of U.S. Patent No. 5,135,395, issued to Marlin ("Marlin") and U.S. Patent No. 5,688,123, issued to Meiers et al. ("Meiers").

VII. ARGUMENT

Claims 30-34 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of Hurson in view of Fradera in view of Kumar. Claims 1, 3, 6-11, 28 and 29 stand rejected under Section 103(a) as being unpatentable over Fradera in view of Kumar. Claims 4, 5, 8, 9 and 11 stand rejected under Section 103(a) as being unpatentable over Fradera in view of Kumar as applied above and in further view of WO '050. Claims 18-27 stand rejected under Section 103(a) as being unpatentable over Fradera and Kumar as applied above and in further view of Marlin and Meiers.

Appellant respectfully submits that these rejections should be withdrawn because the none of the cited references teaches, suggests, or otherwise discloses "one or more lever arms or prongs," as recited in independent Claims 1 and 28. Further, Kumar teaches against the Examiner's interpretation of Kumar and illustrates that "one or more lever arms or prongs" would be disadvantageous to the Kumar mechanism. Therefore, Claims 1, 3-11, and 18-35 should be allowed.

A. Claims 30-34 are Improperly Rejected Under the Judicially Created Doctrine of Obviousness-Type Double Patenting Should Be Withdrawn.

The Examiner's rejection of Claims 30-34 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of Hurson in view of Fradera further in view of Kumar is improper because Claims 30-34 are patentable over Hurson and the cited art.

As discussed below with respect to independent Claim 28, Appellant respectfully submits that these claims are patentable over Hurson, Fradera, and Kumar. Therefore, Appellant respectfully submits that this rejection is improper and should be withdrawn.

B. Claims 1, 3, 6-11, 28 and 29 are Improperly Rejected Under Section 103(a) as Being Unpatentable Over Fradera in View of Kumar.

The Examiner's rejection of Claims 1, 3, 6-11, 28 and 29 under Section 103(a) as being unpatentable over Fradera in view of Kumar is improper because neither Fradera nor Kumar teach each and every feature as recited in these claims.

Claim 1 recites, *inter alia*, a dental implant system comprising a dental implant and a mating component that includes "one more lever arms or prongs configured to engage [a] notch" in a bore of the dental implant. In a similar manner, independent Claim 28 recites, *inter alia*, "engaging a lever arm or prong of a mating component to the notch in the internal bore to releaseably couple a mating component to the dental implant."

The Examiner has acknowledged that the screw for dental implants disclosed in Fradera, the primary reference, does not disclose at least these features of Claims 1 and 28. *See* Office Action, July 27, 2007, p. 4. Nevertheless, the Examiner has argued that Kumar discloses the "one ore lever arms or prongs configured to engage the notch" as recited in Claims 1 and 28. As discussed below, Kumar is devoid of any such disclosure or teaching and in fact, teaches away from such as configuration.

Kumar discloses a retention mechanism for a dental implant tool that allows the implant tool to releasably connect to a dental implant during maneuvering and implantation of the implant. *See* Kumar, col. 1, line 60-col. 2, line 32. As shown below in Figures 2 and 5, the retention mechanism 30 is disposed on a drive shaft 24 of an engaging end 12 of the drive tool. The retention mechanism 30 includes a locking member 32, a biasing member 34, and a stop 42 that provide slidable movement of the locking member 32 within the housing 36 or axial bore 38, which movement is limited by the stop 42. *See id.* at col. 3, lines 11-20; col. 4, lines 34-35; Figures 2, 5.

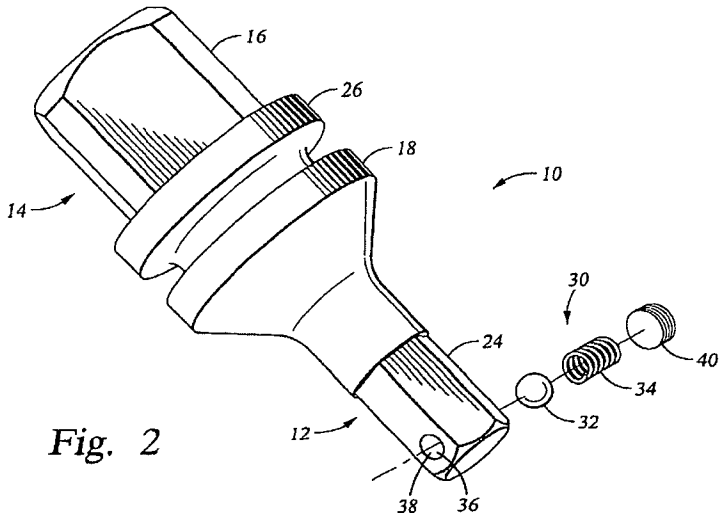

Fig. 2

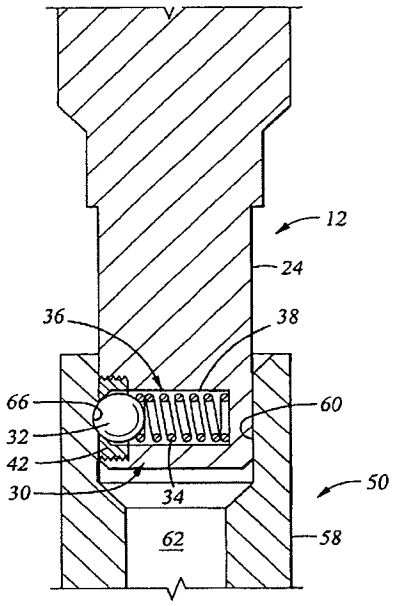

Fig. 5

Kumar also discloses that "[t]his connection is not based on frictional taper fit but on a retention mechanism having an active or moveable locking member and biasing member. **The biasing member biases the locking member to slideably move in an axial bore** located in the driving tool." *Id.* at col. 4, lines 31-35. Kumar emphasizes that this slidable retention mechanism "will not damage the internal cavity of the implant, leave micro-fragments or residuals from the end of the driving tool, and provides a consistent connection force with the implant. Further, the likelihood that the implant will loosen from the driving tool and fall off is reduced." *Id.* at col. 4, lines 35-41. Indeed, it appears that the spring-biased slidable spherical locking member allows the retention mechanism to safely and consistently engage the internal cavity of the implant.

However, Kumar never teaches or otherwise discloses any mechanism other one that employs translational movement—a slidably moveable, biased element or ball. Kumar never discusses any alternative mechanisms or modes of movement, such a pivotal, rotational, or otherwise. Kumar is devoid of any teaching or other disclosure of "one more lever arms or prongs configured to engage the notch" as recited in Claims 1 and 28. Thus, Appellant respectfully submits that Kumar does not and cannot teach the missing features of Claims 1 and 28.

Further, Kumar teaches away from the "one more lever arms or prongs configured to engage the notch" as recited in Claims 1 and 28. As noted above, Kumar emphasizes that a spring-biased slidable spherical locking member is advantageous. In order to provide the spring-biased slidable spherical locking member, Kumar discloses and teaches that the retention mechanism 30 requires three parts—a movable locking member 32, a biasing member 34, and a stop 42. If the Kumar mechanism were altered to include a single piece "lever arm or prong," such a structure would fail to provide the translational or slidable movement of the spring-biased slidable spherical locking member. The advantages of having a slidable retention mechanism, according to Kumar, are lost if a "lever arm or prong" is used. Accordingly, Kumar teaches against a single "lever arm or prong" that does not use slidable motion.

Furthermore, although Kumar indicates that alternative locking members can be used, these locking members are all disclosed as being used in a slidable mode of movement. Kumar

indicates that the locking member 32 is "formed as a ball, but one skilled in the art would appreciate that other locking members can be used as well, such as a pin, button, cylinder, or the like. Further, the biasing member is shown as a spring . . . ." *See id.* at col. 3, lines 22-25. Kumar is devoid of any suggestion, disclosure, or teaching other than slidable or translation movement of the locking member in response to the biasing force of the biasing member. The failure of Kumar to disclose anything other than the spring-biased slidable spherical locking member is attributable to another of its goals: to ensure that the retention mechanism 30 is configured to allow the driving tool to disengage from the implant upon exertion of a "predictable amount of force." As disclosed in Kumar,

> [T]he retention mechanism and connection with the implant or fixture mount provides consistent tactile feedback while the dental driving tool disengages from the implant. A minimal or predictable amount of force is required to perform this disengagement. As such, any interference with the proper placement and location of the implant is greatly reduced, especially when the implant is placed in soft, cortical bone, such as in the posterior maxilla.

See id. at col. 4, lines 42-46. This "predictable amount of force" is essential to fulfill the express purpose of the disclosed configuration of the retention mechanism 30. Kumar emphasizes that the connection between the driving tool and the implant is "consistent and reliable." *Id.* at col. 4, lines 29-31. The spring-biased slidable spherical locking member allows for this goal or purpose to be fulfilled. If a "lever arm or prong" were used in its stead, this goal or purpose of Kumar would be frustrated. A "lever arm or prong" would be unlikely to ensure that a "minimal or predictable amount of force" is required to disengage the driving tool. Additionally, a "lever arm or prong" would likely increase, not reduce, the amount of interference relative to the spring-biased slidable spherical locking member. Thus, Kumar's express goals and purposes would be frustrated under the Examiner's application of Kumar to Claims 1 and 28. Accordingly, Kumar fails to disclose or otherwise teach "one or more lever arms or prongs," as recited in Claims 1 and 28.

Accordingly, Appellant respectfully submits it would not be obvious to modify the cited art to include "one or more lever arms or prongs," as recited in Claims 1 and 28. The claimed arrangement of "lever arms or prongs" advantageously provides an arrangement that reduces the number of parts and facilitates formation of the mating component through injection plastic

molding. In contrast, the mechanism disclosed by Kumar requires additional components and is not suitable for manufacturing through injection molding.

Thus, Appellant respectfully submits that the rejection of Claims 1, 3, 6-11, 28 and 29 under Section 103(a) as being unpatentable over Fradera in view of Kumar should be withdrawn because neither Fradera nor Kumar teach each and every feature as recited in these claims.

C. Claims 4, 5, 8, 9 and 11 are Improperly Rejected Under Section 103(a) as Being Unpatentable Over Fradera in View of Kumar and in Further View of WO '050.

Claims 4, 5, 8, 9 and 11 were rejected under Section 103(a) as being unpatentable over Fradera in view of Kumar as applied above and in further view of WO '050. As noted above, neither Fradera nor Kumar teach, suggest, or otherwise disclose each and every feature recited in independent Claim 1. Furthermore, the combination of Fradera, Kumar, and WO '050 also fails to disclose each and every feature of Claim 1. Accordingly, Claims 4, 5, 8, 9, and 11 are allowable for at least the reason that they depend from an independent base claim. Therefore, Appellant respectfully requests that the rejection of Claims 4, 5, 8, 9, and 11 be withdrawn.

D. Claims 18-27 are Improperly Rejected Under Section 103(a) as Being Unpatentable Over Fradera And Kumar and In Further View of Marlin and Meiers.

Finally, Claims 18-27 were rejected under Section 103(a) as being unpatentable over Fradera and Kumar as applied above and in further view of Marlin and Meiers. As also noted above, neither Fradera nor Kumar teach, suggest, or otherwise disclose each and every feature recited in independent Claim 1. Furthermore, the combination of Fradera, Kumar, Marlin, and Meiers also fails to disclose each and every feature of Claim 1. Accordingly, Claims 18-27 are allowable for at least the reason that they depend from an independent base claim. Therefore, Appellant respectfully requests that the rejection of Claims 18-27 be withdrawn.

VIII. CLAIMS APPENDIX

Inserted below as a Claims Appendix is a copy of the finally rejected claims in the present case from the Amendment.

1. A dental implant system, comprising:

a dental implant including a body portion and an abutment portion that is integrally formed with the body portion, the implant body portion located at a distal end and configured to lie at least partially below a crest of a patient's jawbone, the abutment portion located at a proximate end of the implant and configured to lie at least partially above the crest of the patient's jawbone, the abutment portion comprising a flared portion, a shoulder portion and a final restoration portion, the shoulder portion lying between the flared portion and the final restoration portion, the dental implant further including a bore that extends generally along the longitudinal axis of the dental implant from a top surface of the abutment portion, the bore including an notch configured to releasably receive one or more lever arms or prongs on a mating component; and

a mating component including one or more lever arms or prongs configured to engage the notch.

2. (Canceled)

3. The dental implant system of Claim 1, wherein the body portion and the abutment portion of the implant are machined from a single piece of material.

4. The dental implant system of Claim 1, wherein the cap further includes a tissue retention flange at the distal end that extends below the shoulder portion when the cap is coupled to the abutment portion.

5. The dental implant system of Claim 4, wherein the tissue retraction flange also extends away from the flared portion forming a gap between the tissue retraction flange and the flared portion.

6. The dental implant system of Claim 1, wherein the body portion of the cap includes a base portion that is configured to rest at least partially on the shoulder portion of the abutment portion.

7. The dental implant system of Claim 1, wherein the body portion of the dental implant includes a bone apposition surface.

8. The dental implant system of Claim 1, wherein the cap is white.

9. The dental implant system of Claim 1, wherein the cap has a color that is substantially the same a natural tooth.

10. The dental implant system of Claim 1, wherein the abutment portion and the cap have round cross-sections.

11. The dental implant system of Claim 1, wherein the abutment portion and the cap have non-round cross-sections.

12-17. (Canceled)

18. The dental implant system of Claim 1, in combination with a coping for creating a final restoration, the coping comprising a body portion having a proximal end, a distal end and an inner surface that defines an internal cavity and at least one standoff that extends from the inner surface towards a center of the internal cavity.

19. The dental implant system of Claim 18, wherein the at least one standoff extends at least about 25 microns from the inner surface.

20. The dental implant system of Claim 19, wherein the at least one standoff extends less than about 50 microns from the inner surface.

21. The dental implant system of Claim 18, wherein the coping is made of a material that can be melted and removed from a mold during an investment casting process.

22. The dental implant system of Claim 21, wherein the coping is made of plastic.

23. The dental implant system of Claim 22, wherein the coping is made from a material that is suitable for forming a portion of the final restoration.

24. The dental implant system of Claim 23, wherein the coping is made of gold.

25. The dental implant system of Claim 23, wherein the coping is made of a ceramic material.

26. The dental implant system of Claim 18, wherein the at least one standoff has a tapered shape.

27. The dental implant system of Claim 18, further comprising a flanged region that configured to rest upon a shoulder of a final abutment.

28. A method for installing a prosthetic tooth, comprising the steps of:

inserting a distal end of a body portion of a single stage dental implant having a body portion, an abutment portion and an internal bore having a notch into a patient's jawbone;

engaging a lever arm or prong of a mating component to the notch in the internal bore to releasably couple a mating component to the dental implant;

coupling a healing cap to the abutment portion such that the abutment portion is positioned within an internal cavity of the healing cap; and

removing the healing cap from the abutment portion.

29. A method as in Claim 28, wherein the step of coupling a healing cap to an abutment portion, further includes using a healing cap screw to couple the healing cap to the abutment portion.

30. A method as in Claim 28, further comprising

providing an impression cap with an injection port and a plurality of vent holes;

positioning the impression cap onto the abutment portion of the implant; and

injecting a first impression material into the impression cap through the injection port until the first impression material is extruded through at least one of the vent holes.

31. A method as in Claim 30, wherein the step of positioning the impression cap onto the abutment portion includes snapping the impression cap onto the shoulder of the abutment portion.

32. A method as in Claim 30, further including the steps of taking an impression of the patient's mouth by placing an impression tray filed with a second impression material over the impression cap and removing the impression tray and the impression cap from the patient's mouth.

33. A method as in Claim 30, further including modifying the shape of the abutment portion.

34. A method as in Claim 30, wherein the step of injecting the first impression material into the impression cap includes inserting a tip of a syringe filled with the first impression material into the injection port of the impression cap.

35. A method as in Claim 28, further comprising:

providing a coping having a body portion that comprises a proximal end, a distal end and an inner surface that defines an internal cavity and at least one standoff that extends from the inner surface towards a center of the internal cavity;

providing an analogue of the abutment portion of the dental implant,

placing the coping over the analogue;

applying a material suitable for investment casting to an outer surface of the coping;

encasing the coping and the material suitable for investment casting in an investment material;

melting the coping and the material suitable for investment casting;

removing the coping and the material suitable for investment casting from the investment material; and

filling a cavity within the investment material with a material suitable for forming a part of a final restoration.

IX. EVIDENCE APPENDIX

Appellant is submitting no evidence with this appeal.

X. RELATED PROCEEDINGS APPENDIX

Appellant is unaware of any related appeals or interferences.

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